TITLE PAGE

Title:

Evaluation of aggression in Australian after-hours doctor home-visit services.

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Abstract

Rationale, aims and objectives:

Minimising the risks and distress arising from aggression in after-hours house call (AHHC) services will help improve service quality in the industry. Unfortunately, no national study has ever evaluated this in Australian AHHCs. Apart from reducing this gap, findings from this work will have global relevance given the rising popularity of the AHHC industry worldwide.

Methods:

A survey of all 300 doctors employed by the National Home Doctor Service (NHDS), Australia's largest AHHC service provider. A validated electronic questionnaire was used to examine the doctors' experiences over a 12-month period.

Results:

There were 168 valid responses (56% response rate). Aggression prevalence was 47.1%, and just over half (51.8%) of the cases came from the patients. "Verbal aggression" was the commonest (48.3%). Others are "threats" (26.6%), "vexatious complaints" (13.3%), "property damage" (4.2%), "physical violence" (4.2%), "sexual harassment" (2.8%), and "stalking" (0.7%). Majority of the respondents were concerned (90.2%) and apprehensive (75.2%) regarding the risks.

Doctors who have experienced aggression were more likely to express apprehension (OR=3.99; CI = 1.54-10.31; p=0.004), while those that have attained Postgraduate Fellowships (Vocationally Registered) were less likely to report experiences of aggression (OR = 0.28; CI = 0.09 to 0.84; p = 0.02).

Even though a higher proportion of females were concerned (92.3% vs. 89.6%) and apprehensive (82.1% vs. 73.6%) compared to males, these differences were not statistically significant (Fisher's Exact Tests: P = 1.000 and 0.469 respectively).

Conclusion:

Aggression in Australian AHHC affects nearly one-in-two practitioners, with high levels of concern and apprehension being expressed. Concerned companies should do more to ensure that their doctors attain PG fellowships, as this is linked to lower reports of aggression. Where possible, family and friends need to be involved in patient care, as nearly half of the reported aggressions come from them.

Key Words: Violence, aggression, general practice, family physicians, after-hours house calls, medical deputising services, out of hours.

Background

Work-related aggression involves “incidents where staff are abused, threatened or assaulted in circumstances related to their work” (1), and generally include statements and behaviours that pose explicit or implicit threats to the safety and well-being of workers, giving them reasonable cause to believe that they are at risk (2, 3). According to Tolhurst et al., the rates of work-related aggression against doctors may be as high 73% over their entire careers, and these may have negative impacts on their services (4). In fact, a study in New Zealand found that as many as 35% of regular hours General Practitioners (GPs) reported distress following aggression (5). As such, measuring and monitoring these aggressions in healthcare is a vital form of evaluation of the services, as curtailing them can improve the safety of the practitioners, indirectly enhancing the quality of their services (6).

Doctors involved in after-hours house calls (AHHC) are generally perceived to be at significant risks of aggression (7), and, given the practical implications of these risks as highlighted above, as well as the increasing popularity of the services in Australia(8), it becomes imperative to clarify the exact risks in the industry. No previous study has ever looked at this aspect of Australian AHHC at a national scale.

This study, therefore, aims to quantify these aggression risks, identify their sources, and establish the doctor-characteristics associated with them. It also explores the levels of apprehension and concerns prevalent among the involved practitioners. The benefits of the findings will be useful, not just locally, but globally as well, given the international interests in after-hours house visits in many countries like the United Kingdom (UK), France, Canada and the Netherlands, which are at different stages of development of their AHHC services (9). The local interest in Australia might also have some international implications, since one recent study found that about three-quarters of the doctors involved in Australian AHHC were primarily overseas-trained (10), while another paper

reported that approximately 56% of the entire Australia's medical workforce were either born overseas, or obtained their primary medical degrees therefrom (11).

Methods

Setting and participants

Study participants comprised of Australian doctors (GPs and others) who undertake AHHC through the National Home Doctor Service (NHDS), Australia's largest provider of doctor home-visits (12). Arguably, at the time of this work, the NHDS doctors represented the Australian after-hours doctors' community, given that over the last few years to the study, the company had successfully merged with the largest after-hour general practices (also called Medical Deputising Services, MDS) in various Australian locations. In Australia, these MDS companies are generally commercialized, and most exist solely to deliver AHHC services and attend to patients not normally known to the doctors involved. This study did not cover AHHC services provided by non-commercialized providers like individual or co-operative organization of general practices. These latter groups would normally attend to patients who are registered with them, who are known to them, and who would normally attend to their clinics during regular hours. However, a recent report indicated that only about 1-in-10 GPs in Australia are willing to undertake the AHHC service directly(13), and this limits the number of such providers. This, and the fact that there is no known national body representing the non-commercialized services, made identifying and reaching out to them difficult. This study, therefore, focused only on the commercialized services.

Australia comprises of six states and two territories, with an estimated population of 23.7 million(14). The states include New South Wales (NSW), Victoria (VIC), Queensland (QLD), Southern Australia (SA), Western Australia (WA), and Tasmania (TAS), while the territories include the Northern Territory (NT) and Australian Capital Territory (ACT)(14). At the time of this survey (late 2014), eight NHDS locations were in existence across all states and territories, except for Western Australia, Tasmania, and the Northern Territory. These eight locations included Sydney

(NSW), the Gold Coast (QLD), Adelaide (SA), Brisbane (QLD), the Sunshine Coast (QLD), Melbourne (VIC), Geelong (VIC) and Canberra (ACT) (12).

Official sources from the NHDS confirmed that there were 300 doctors employed by the service at the time of this survey, and this number constituted this study's cohort. NHDS locations were overseen by clinical or general managers, and the participants in this study were reached through email links sent directly to them by their respective managers. However, the completed questionnaires were returned directly to the researchers by clicking the 'submit' button after completing the survey. We focused on the doctor's experiences over the 12-month period from October 2013 to September 2014, but the actual data collection itself took about six weeks, from the end of September 2014 to mid-November 2014.

Definitions

AHHC is defined as house visits by doctors at any time from 6pm to 8am on weekdays, from 12 noon on Saturdays, and all-day Sundays and Public Holidays (12, 15). Even though it is primarily a general practice job in Australia, doctors from other specialties (surgical, medical, emergency physicians, etc.) also partake in this service.

“Apprehension” and **“Concern”**, as used in this study, have distinct meanings. Apprehension signifies the anxiety or fear that something unpleasant will happen,(16) whereas Concern indicates a preoccupation with the risks of aggression, without really being anxious or fearful(17). Even though Apprehension and Concern can be used interchangeably, they were explored separately to capture diverse emotional responses of the participants.

Aggression can manifest in various forms, and this study explores the following eight forms: verbal abuse; property damage (and theft); physical violence; threats; sexual harassment; sexual violence (abuse or assault); stalking; and vexatious complaints;(18) with verbal abuse reportedly being the most common.(19, 20) Definitions of these forms of aggression are summarised in *Box 1* below.

Verbal Abuse: Swearing or using obscene gestures aimed at offending you. This can include abuse over the phone.

Property damage or Theft: Damage or theft to property belonging to you, your family or your workplace. Attempted theft is also included.

Physical Violence: Being physically attacked. Includes punching, slapping, kicking, or use of a weapon or other object with intent to cause bodily harm or intimidate.

Threats: Using words or gestures to threaten, including attempts to pressure you into prescribing or completing a certificate.

Sexual harassment: Any form of sexual proposition or unwelcome sexual attention, including behaviours such as humiliating or offensive jokes and remarks with sexual overtones, suggestive looks or physical gestures, requests for inappropriate physical examinations, and touching or grabbing.

Sexual violence/abuse/assault: Any forced sexual act, rape, or indecent assault. Includes brushing, touching, grabbing of the genitals or breasts.

Stalking: Being purposefully stalked or followed to or from home or workplace, including to Home Visits and Hospitals.

Vexatious complaints: Unnecessary and frivolous complaints made against you verbally, written or otherwise, whether to your employers or to the Medical Board.

Box 1: Definition of the various forms of aggression.(18)

Protective measures are considered to have been used if, during AHHC, the doctor consciously adopted any of the protective measures contained in the questionnaire (*Supplementary Data 1*). These measures include “availing oneself of protective policies put in place by the employing MDS”, the “use of chaperones/security personnel”, the use of “self-defense or de-escalation strategies”, and the use of “panic buttons” or “personal alarms”.

Questionnaire

As there was no off-the-shelf questionnaire suitable for this study, we constructed one based on information gathered from other studies (18-20). The raw tool was then piloted with 10 GPs in Australia who undertook AHHC services but were not part of the NHDS as at the time of the survey. The GPs’ recommendations were used to modify and validate the drafted questionnaire (*Supplementary Data 1*). The questionnaire was divided into seven sections with a total of 25

questions designed to collect data for multiple studies. The focus of this study is derived from the first 18 questions contained in the first seven pages and spans the following sections: Introduction and Consent; Biodata; Professional Data; and Risks. Definitions of the different kinds of aggression were included in the questionnaire (question 17) to ensure uniformity of understanding among the respondents.

Sample size estimation

To calculate the minimum number of responses required to reflect the desired statistic in this study, an estimation was done based on a previous study (21) that found a 63.7% aggression-rate among doctors. With a population size of 300 in this study, and allowing for an error margin of 5% with a 95% confidence interval (CI), the minimum required number of responses was found to be 163.

Statistical analysis

All analysis was performed using SPSS version 22.0. Descriptive statistics, Fisher's Exact Test of Independence, and Binary Logistics Regression (BLR), were used as necessary. Levels of Significance (p-value) was set at ≤ 0.05 .

To explore any gender difference regarding apprehension and concern over aggression in AHHC, the Fisher's exact test of independence was used as the low numbers in some cells of the 2x2 tables was not feasible for the Chi-squared Test to be used. The Null Hypothesis (H_0) was that “there are no gender differences regarding levels of concern or apprehension over the risks of aggression among doctors working in AHHC services”.

To explore the associations between the Dependent or Outcome Variable (experience of overall aggression) and the Independent or Predictor Variables (the various doctor variables collected in the questionnaire), the BLR analysis was adopted.

In other to facilitate the analysis, the Dependent Variable was re-coded into two groups of “yes” or “no”, with responses of “unsure” being excluded. Similarly, each Independent Variable (eight in number) included in the BLR analysis was re-coded into two categories as follows:

apprehension (yes and no), gender (male and female), age (<40 years and $\geq$ 40 years), postgraduate vocational status (“vocationally registered [VR] or fellows” for those that had attained postgraduate [PG] fellowships, and “non-VR or non-fellows” for those who had not), hours worked per week (<24 hours and $\geq$ 24 hours), duration in after-hours service provision ($\leq$ 2 years and >2 years), country of primary degree (Australian-trained and overseas-trained), and the use of protective measures while on AHHC service delivery (yes or no).

For clarity, respondents who answered “no” to the question of use or otherwise of protective measures, or who were “unsure of what to do”, or those who “had never thought about using protective measures”, were all re-coded into the “no” category for the analysis (where necessary). Similarly, respondents whose answer regarding the “level of apprehension” included “slightly” to “extremely” was re-coded into “yes”, while all those who answered “no” remained as such.

Because the re-coded dependent data (experience of aggression) was a binary categorical data, binary logistics regression (BLR) was used to explore the required associations between them and the eight independent doctor variables. The use of logistics regression allowed for the effect of each independent variable to be analysed while minimising the confounding impact of the others. For each BLR analysis, an odds ratio (OR) was generated, along with its corresponding 95% confidence interval (CI), with a significant level (p -value) set at ≤ 0.05 . As is required for logistic regressions, one of the two categories for each independent variable became a ‘reference’ (included in parenthesis in the relevant table), and ORs were interpreted with respect to these references.

Results

A total of 168 (out of 300) valid responses were received, constituting a 56% response rate. The summary of the basic characteristics of the respondents is shown in Table 1.

Aggression prevalence, types and their sources (Tables 2a, 2b and 2c):

Table 2(a) shows that 47.1% of the respondents had experienced at least one form of aggression over the 12 months surveyed. As shown in Table 2(b), verbal abuse was the most common form

(48.3%), and 51.8% of all aggressive acts were carried out by patients, while 30.2% and 18.0% respectively came from their family members and friends (Table 2c).

Levels of concern and apprehension, and differences by gender:

As shown in Table 3, 90.2% of respondents were “concerned” about the risks of aggression, while 75.2% were “apprehensive”, but most of these were only to mild degrees. Table 4 shows that, compared to males, a higher proportion of females expressed concerns (92.3% vs. 89.6%) and apprehension (82.1% Vs 73.6%), but these both missed statistical significance (Fisher's exact tests $P = 1.000$ and 0.469 respectively).

Associations between “aggression” and independent doctor variables:

All results of the BLR analysis are presented in Table 5. These reveal that doctors who had experienced aggression were four times more likely to express feelings of apprehension ($OR = 3.99$; $CI = 1.54$ to 10.31 ; $p = 0.004$), while those that have attained PG Fellowships ((VR doctors), were less likely to report experiences of aggression ($OR = 0.28$; $CI = 0.09$ to 0.84 ; $p = 0.02$). No significant associations were found with other independent doctor variables like age, gender, hours worked per week, duration (in years) in AHHC, the country where the doctor obtained their primary medical degrees, and whether protective measures are adopted while at work or not.

Discussion

We observed that there were fewer females in AHHC (19.6%) compared to the overall general practice population (43%) in Australia,(11) a finding that might be explained by the fact that female doctors are generally more apprehensive regarding safety in AHHC, as was found, not just by this study, but also an independent one(4).

No previous AHHC data from Australia was available for direct comparison with the 47.1% prevalence of aggression found in our study. However, overseas, a 2015 study in Germany (22) reported a 19% 12-month aggression rate against doctors embarking on on-call home visits. While

this may appear to indicate that there is less aggression in the German AHHC service compared to the Australian one, it should be noted that health systems in the two countries are different, and the survey methods used by the two studies are also different. Caution should therefore be applied in accepting the apparent implications of this comparison.

Comparisons to studies that looked at regular-hour Australian general practices, however, indicate that this 47.1% rate from this work is relatively low, as exemplified by the 63.7% (21) and 59.3% (23) recorded in two different New South Wales (NSW) studies, as well as the 57% rate recorded in Victoria (24). Our finding is equally less than the estimated two-thirds aggression-rate suggested by the Royal Australian College of General Practitioners (RACGP) as the prevalent rate among Australian GPs (25), but is nearly identical to the 48% prevalence rate recorded among hospital-based doctors in a 2004 survey of healthcare staff in northern NSW (26).

Even though a previous study had reported a higher incidence of all forms of aggression in hospital-based doctors compared to office-based GPs (27), our study, and the recent one from Germany (22), were the first set of studies to have reported incidences of aggression among AHHC GPs, and both seem to be lower than regular-hour ones. The possibility, given the foregoing analysis, that the aggression rates in Australian AHHC are relatively low compared to rates in regular-hours, office-based general practice and hospital-based doctors, is somewhat surprising given the “high perception” of the risks associated with AHHC (4, 7). This relatively low level of aggression may be partly responsible for the high level of satisfaction reported by Australian practitioners involved in AHHC (28). Patients themselves, who utilise the services, have also reported high levels of satisfaction with the services(29), and this may also be a factor in the recorded aggression rate in this study. It should be noted, however, that even though the 47.1% aggression rate from our study appear low in relative terms, it still represents a prevalence affecting nearly one-in-two doctors over a 12-month period, and a lower level should be more acceptable.

We found it interesting that, despite the modest aggression experiences observed in our study, most doctors in AHHC were still “concerned” (90.2%), and “apprehensive” (75.2%)

regarding aggression (Table 3). This finding seems to be in line with those of earlier studies (4, 11, 18, 21), which all reported that apprehension and concerns are generally high regarding safety in AHHC. The higher proportion of females than males that expressed concerns (92.3% to 89.6%) and apprehension (82.1% to 73.6%), even though were not statistically significant (Table 4), seem to be partly consistent with the report of a previous study (24), which found that females were more apprehensive regarding safety in AHHC. This is also in line with that from the recent German study (22), which reported that more females perceive on-call home visits to be risky compared to males (66% to 34%).

Our finding that just over half (51.8%) of the experiences of aggression in AHHC come from patients is in line with findings from two other studies (20, 26). The patient's relatives (30.2%) and friends (18.0%) contribute to the rest of experiences, which combined, account for nearly the other half of the reported aggression in our study. Even though this study was not designed to find out the exact interests of the patient's relatives and friends, we believe that they are likely to be as concerned as the patients themselves about the outcomes of medical consultations, and will, therefore, be as emotionally engaged as the primary patients. We, therefore, recommend that practitioners be constantly reminded of this possibility, and make efforts to involve family and/or friends (where permitted by the patient) while interacting with patients.

It comes as little surprise that doctors who have experienced aggression in AHHC were nearly four times likely to express apprehension. One would expect that once aggression is experienced, the practitioner would be more wary of further events compared than those that had not experienced it. Another interesting association we found was that practitioners who have attained post-graduate fellowships reported almost 70% less experiences of aggression than their non-VR counterparts. We believe that, given that these group of doctors are generally more experienced and have had more training than the non-fellows, it is likely that they are better equipped to forestall and/or defuse potential and actual cases of aggression. Incidentally, related

studies (30, 31) had earlier established that these same group of doctors were less likely to report burnout with their duties in AHHC services, suggesting that the attainment of VR status (PG fellowships), somehow confers coping and protective advantages for doctors working in AHHC. There is a chance, though, that this finding may be the result of VR doctors not identifying cases of aggression as much as their non-VR colleagues, thereby, reporting less incidents. Unfortunately, this study was not designed to explore this fact, and future studies may do well to explore the real reasons behind this exciting finding.

Study limitations

We consider it a limitation that only one Medical Deputising Company (MDS), the NHDS, was engaged for this survey. Even though the NHDS was by far the largest service providers of AHHC in Australia, we acknowledge that involving some other home visit companies might broaden the scope of the study. However, given that the service models are the same across all MDS companies in Australia, this limitation may be of minimal significance.

Another limitation is that this study did not cover AHHC services provided directly by individual general practice surgeries or co-operative organisations, which are not as commercialized as the MDS models represented in this study. Those groups are more likely to be called out by their own regular patients, so the experiences of, and responses to, aggression in these groups may differ from that reported in this paper.

Conclusions and recommendations

The 12-month aggression-prevalence among AHHC in Australia was 47.1%, with patients themselves being the main source, while verbal abuse is the commonest form. Nearly 90% of the experienced cases were low-level aggression, but despite these, the levels of concern and apprehension remained high. There was no significant gender or age difference with the experiences of aggression, but doctors who have experienced aggression were the ones most likely to express

concern, while those that have attained postgraduate fellowships (Vocationally Registered GPs) were less likely to experience aggression.

This study, therefore, recommends that doctors, particularly those working in AHHC services, should endeavour to attain PG fellowships as this seems to confer some advantages in coping with aggression in the industry. Future studies may need to explore the real reasons behind this finding. It is also recommended that practitioners should make efforts to involve family and/or friends (where permitted by the patient) while interacting with patients, given that nearly half of the reported aggressions emanates from family and friends.

Ethical Considerations: Ethical clearance was obtained from the Human Research Ethics Committee of the Griffiths University, Australia (GU Ref No: MED/47/14/HREC). Consent was equally mandatory before participants were able to complete the questionnaires.

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Conflicts of interest: None.

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